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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/629,711 | 07/30/2003 | Yuka Utsumi | 503.34972CX2 | 5363 |
| 20457 | 7590 | 12/14/2004 | EXAMINER | |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP | | | PARKER, KENNETH | |
| 1300 NORTH SEVENTEENTH STREET | | | ART UNIT | |
| SUITE 1800 | | | PAPER NUMBER | |
| ARLINGTON, VA 22209-9889 | | | 2871 | |

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,711

Applicant(s)

UTSUMI ET AL.

Examiner

Kenneth A Parker

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/29/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Asano 5048933.

The claims are substantially written to a light source and a double refraction type LCD (birefringence mode) with a higher transmittance for blue then green then red.

The reference discloses an STN device (STN devices are double refraction mode) with an illumination with the inverse relationship add the LCD with the claimed relationship.

Note the discussion in column 3:

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A conventional SBE type liquid crystal cell has a nontransmission spectral region A on the short wavelength side of the visible wavelength region of the transmission spectrum as shown in FIG. 4, in which almost no light can be transmitted. The non-transmission spectral region A is shifted to a shorter wavelength region by decreasing the value of $\Delta n \cdot d$. However, too small $\Delta n \cdot d$ decreases the whole light transmittance in the visible wavelength region of 400 to 700 nm, so that the brightness in the light transmitting state becomes insufficient. Therefore, $\Delta n \cdot d$ is preferably in the range of 0.65 to 0.90 μm .

(38) The optimum value of $\Delta n \cdot d$ relates to an average tilt angle θ_{OFF} of a liquid crystal in applying an OFF voltage, and the more the average tilt angle θ_{OFF} is, the larger the optimum value of $\Delta n \cdot d$ is. The results of experiments show that the excellent display characteristics can be obtained when $\Delta n \cdot d$ and θ_{OFF} satisfy the following equation; (39) $\Delta n \cdot d \cdot \cos^2 \theta_{\text{OFF}} \approx 0.68 \pm 0.05 \mu\text{m}$. Δn is a value of a reflective anisotropy of a nematic liquid crystal containing an optically active substance, and can be replaced with that of the liquid crystal containing no optically active substance since the content thereof is usually 5 weight %. The average tilt angle θ_{OFF} is an average value of the angle defined by the intersection of a director of liquid crystal molecules in applying an OFF voltage and an electrode substrate. The average tilt angle θ_{OFF} depends on the kind of the alignment layer, the pretilt angle, the physical properties of the nematic liquid crystal, and an applied voltage.

(40) FIG. 15 illustrates a relation between the average tilt angles and pretilt angles $\theta_{\text{sub.0}}$ of liquid crystals ZLI-2293 made by Merck and CR-4008 made by Chisso in applying an OFF voltage and an ON voltage in multiplex driving at a duty ratio of 1/100, wherein curves E and F correspond to ZLI-2293 and CR-4008, respectively. The larger the pretilt angle $\theta_{\text{sub.0}}$ is, the larger the average tilt angle θ_{OFF} is and, therefore, the larger the pretilt angle $\theta_{\text{sub.0}}$ is, the larger the optimum $\Delta n \cdot d$ value is.

There is some difference in the claim language however, from the discussion of Asano, as the claims indicate the highest wavelength of of the backlight for blue compared to that for green, etc..., however, the result appear to be the same as the Gooch and Tarry curves are smooth, so blue as compared to the highest wavelength of blue should be substantatially the same an provide a sufficient basis for an rejection under 102/103 to shift the burdon to applicant to show an unobvious difference. See MPEP 2112.


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kenneth A Parker
Primary Examiner
Art Unit 2871